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WASHINGTON STATE VENTILATION AND INDOOR AIR QUALITY CODE
WAC 51-13; 2006 Edition

Best to print on legal (8 1/2 x 14") paper.

For alternate formats, call 206-296-6600.

VIAQ - USING EXHAUST FANS (# VIAQ 2)

Specifications for the Washington State Ventilation and Indoor Air Quality Code, 2006 edition (effective 7/1/07) for the whole house ventilation system serving residences of 4 stories of less.

A. SOURCE SPECIFIC VENTILATION REQUIREMENTS:

1. **EXHAUST FAN REQUIREMENTS (Reference Table 3-1):**
   a) Bathrooms, laundries, and powder rooms: 50 CFM @ 0.25" W.G.
   b) Kitchens: 100 CFM @ 0.25" W.G. Range hoods and down draft ranges shall be rated not less than 100 CFM @ 0.10" W.G.
2. **EXHAUST DUCT REQUIREMENTS:**
   a) Be insulated to a minimum R-4 in unconditioned spaces.
   b) Be equipped with a backdraft damper.
   c) Terminate outside the building.
   d) Comply with Table 3-3 and section 303.3.4.

NOTE: *All manufacturer's fan flow ratings shall be determined as per HVI 916 (April 1995) or AMCA 210.*

B. WHOLE HOUSE VENTILATION REQUIREMENTS:

Outdoor air shall be supplied to all habitable rooms (at flow rates specified in Table 3.2) using the following methods:

1. **ROOM FRESH AIR INLETS SHALL COMPLY WITH THE FOLLOWING:**
   a) Have controllable and secure openings.
   b) Be sleeved or designed so as not to compromise the thermal properties of the wall or window in which they are placed.
   c) Provide a minimum of four square inches of net free area of opening for each habitable area.

NOTE: Outdoor air inlets are not required, if the home has a ducted forced air heating system that communicates with all habitable rooms and has interior doors undercut a minimum of ½ - inch above the finish floor covering.

2. **WHOLE HOUSE EXHAUST FANS SHALL:**
   a) Be sized according to Table 3-2.
   b) Flow rated at 0.25" W.G. static pressure.
   c) Sound rated at 1.5 sones maximum.

NOTE: *A "source specific" exhaust fan may also serve as the "whole house" exhaust fan as long as the sone rating and the whole house CFM requirement is met. A fan relay shall be installed to allow for both continuous and intermittent operation.*

3. **WHOLE HOUSE EXHAUST FAN CONTROLS:**
   a) Be controlled by a 24-hour clock timer.
   b) Provide capability of continuous operation, manual and automatic control.
   c) The 24-hour clock timer shall be readily accessible.
   d) At the time of final inspection, the automatic control timer shall be set to operate the whole house fan for at least 8 hours a day.

NOTE: ***A label shall be affixed to the control that reads "Whole House Ventilation (see operating instructions)".*** **Installers shall provide the manufacturer's installation, operation instructions, and a whole house ventilation system operation description.**

4. **WHOLE HOUSE EXHAUST DUCTS:**
   a) Be sized according to Table 3-3.
   b) Insulated to a minimum R-4 in unconditioned spaces.
   c) Terminate outside the building.

C. FRESH AIR DISTRIBUTION:

Outdoor air shall be distributed to each habitable room by individual fresh air inlets. Provisions shall be made to ensure airflow by the installation of distribution ducts, transoms, or undercutting doors a minimum of 1/2 inch above the finished floor coverings.

NOTE: *Outdoor air inlets are not required, if the home has a ducted forced air heating system that communicates with all habitable rooms and has interior doors undercut a minimum of ½ - inch above the finish floor covering.*

D. VENTILATION SYSTEM TESTING:

At the discretion of the building official, flow testing may be required to verify that the mechanical system(s) satisfies the requirements of section 303.

TABLE 3-1
Minimum Source Specific Ventilation Capacity Requirements

	Bathrooms	Kitchens
Intermittently operating	50 cfm	100 cfm
Continuous operation	20 cfm	25 cfm

TABLE 3-2
Ventilation Rates For All Group R occupancies four (4) stories and less*
Minimum and Maximum Ventilation Rates: Cubic Feet Per Minute (CFM)

Floor Area, ft^2	Bedrooms													
	2 or less		3		4		5		6		7		8	
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
<500	50	75	65	98	80	120	95	143	110	165	125	188	140	210
501-1000	55	83	70	105	85	128	100	150	115	173	130	195	145	218
1001-1500	60	90	75	113	90	135	105	158	120	180	135	203	150	225
1501-2000	65	98	80	120	95	143	110	165	125	188	140	210	155	233
2001-2500	70	105	85	128	100	150	115	173	130	195	145	218	160	240
2501-3000	75	113	90	135	105	158	120	180	135	203	150	225	165	248
3001-3500	80	120	95	143	110	165	125	188	140	210	155	233	170	255
3501-4000	85	128	100	150	115	173	130	195	145	218	160	240	175	263
4001-5000	95	143	110	165	125	188	140	210	155	233	170	255	185	278
5001-6000	105	158	120	180	135	203	150	225	165	248	180	270	195	293
6001-7000	115	173	130	195	145	218	160	240	175	263	190	285	205	308
7001-8000	125	188	140	210	155	233	170	255	185	278	200	300	215	323
8001-9000	135	203	150	225	165	248	180	270	195	293	210	315	225	338
>9000	145	218	160	240	175	263	190	285	205	308	220	330	235	353

***** For residences that exceed 8 bedrooms, increase the minimum requirement listed for 8 bedrooms by an additional 15 CFM per bedroom. The maximum CFM is equal to 1.5 times the minimum.

TABLE 3-3
Prescriptive Exhaust Duct Sizing

Fan Tested CFM @ 0.25 W.G.	Minimum Flex Diameter	Maximum Length Feet	Minimum Smooth Diameter	Maximum Length Feet	Maximum Elbows[1]
50	4 inch	25	4 inch	70	3
50	5 inch	90	5 inch	100	3
50	6 inch	No Limit	6 inch	No Limit	3
80	4 inch[2]	NA	4 inch	20	3
80	5 inch	15	5 inch	100	3
80	6 inch	90	6 inch	No Limit	3
100	5 inch[2]	NA	5 inch	50	3
100	6 inch	45	6 inch	No Limit	3
125	6 inch	15	6 inch	No Limit	3
125	7 inch	70	7 inch	No Limit	3

1. For each additional elbow subtract 10 feet from length.
2. Flex ducts of this diameter are not permitted with fans of this size.

Check out the DDES Web site at www.kingcounty.gov/permits